WHAT IS CLAIMED IS:

Sub B1

1. A synchronous bus for a telecommunications node, the bus comprising:

a frame repeating at a defined interval;

each frame comprising of a plurality of service channels;

a service channel in at least one frame individually transporting traffic for a DS-0 connection; and

a set of service channels in the frame together transporting an asynchronous transfer mode (ATM) cell.

2. The bus of Claim 1, wherein the defined interval comprises 125 microseconds and each service channel is two bytes in size.

3. The bus of Claim 1, further comprising:

a point-to-point link between each line card and a switch core of a telecommunications node; and

each point-to-point link comprising the frame repeating at the defined interval.

4. The bus of Claim 1, the service channel transporting traffic for the DS-0 connection further comprising a current channel associated signaling (CAS) value for the DS-0 connection.

5. The bus of Claim 1, further comprising every service channel transporting traffic for a DS-0 connection comprising a current channel associated signaling (CAS) value for the DS-0 connection.

6. The bus of Claim 1, the set of service channels further comprising a block of contiguous service channels.

7. The bus of Claim 6, wherein the defined interval comprises 125 microseconds, each service channel is two bytes in size, and the block of contiguous service channels comprise 27 service channels.

8. The bus of Claim 1, the set of service channels comprising a first set of service channels, further comprising a second set of service channels together transporting traffic for an integrated services digital network (ISDN) connection.

9. The bus of Claim 8, the second set of service channels further comprising a block of contiguous service channels together transporting two B-channels and a D-channel of the ISDN connection.

10. The bus of Claim 9, wherein the defined interval comprises 125 microseconds and each service channel is two bytes in size.

11. The bus of Claim 1, further comprising:

each frame further comprising an overhead portion;

the overhead portion comprising an internode communication channel; and

the internode communication channel in at least one frame transporting control traffic generated by a line card of a telecommunications node transmitting the frame and destined for a disparate element of the telecommunications node.

12. The bus of Claim 11, wherein the disparate element of the telecommunications node comprises a disparate line card.

13. The bus of Claim 11, wherein the disparate element of the telecommunications node comprises a switch card.

14. A telecommunications node, comprising:

a line card operable to generate a frame including a plurality of service channels each sized to individually transport DS-0 traffic and in connection with other service channels to transport an ATM cell to insert DS-0 traffic and ATM cells into the service channels, and to repeat the frame at a defined interval on a bus; and

the switch core operable to receive the frame from the synchronous bus and to synchronously switch the DS-0 traffic and the ATM cells.

15. The telecommunications node of Claim 14, further comprising the line card operable to repeat the frame on a point-to-point link between the line card and the switch core.

16. The telecommunications node of Claim 14, wherein each service channel is sized to transport in connection with other service channels the ISDN traffic, further comprising:

the line card operable to insert the integrated services digital network (ISDN) traffic into service channels; and

the switch core operable to synchronously switch the ISDN traffic.

17. The telecommunications node of Claim 14, wherein each frame of the TDM bus comprises an overhead portion including an internode communication channel further comprising:

the line card operable to generate control traffic destined for a disparate element of the telecommunications node, to insert the control traffic into the internode communication channel of a frame and to transmit the frame to the switch core; and

the switch core operable to switch the control traffic to the destination element based on the position of the control traffic in the internode communication channel.

18. A method for communicating traffic between elements in a telecommunications node, comprising:

repeating a frame at a defined interval on a synchronous bus,

providing a plurality of service channel in each frame;

in at least one frame, transporting traffic for a DS-0 connection in a single service channel;

in the frame, transporting an asynchronous transfer mode (ATM) cell in a set of service channels; and

synchronously switching the DS-0 traffic and the ATM cell in the frame.

19. The method of Claim 18, wherein the service channel is two bytes in size, further comprising repeating the frame at 125 microsecond intervals.

20. The method of Claim 18, wherein the TDM bus comprises a point-to-point link, further comprising repeating the frame at a defined interval on a point-to-point link.

21. The method of Claim 18, further comprising transporting in-band a current channel associated signaling (CAS) value for the DS-0 connection in the service channel for the DS-0 connection.

22. The method of Claim 18, further comprising transporting the ATM cell in a block of contiguous service channels.

23. The method of Claim 18, further comprising transporting traffic for an integrated services digital network (ISDN) connection in a second set of service channels of the frame.

24. The method of Claim 18, further comprising:

providing in each frame an overhead portion including an internode communication channel;

generating control traffic at a line card of a telecommunications node;

inserting the control traffic into an internode communication channel of a frame;

transmitting the frame from the line card to a switch core of the telecommunications node; and

synchronously switching the control traffic at the switch core to a destination element in the telecommunications node based on a position of the control traffic in the internode communication channel.

25. A telecommunications signal transmitted on a synchronous bus of a telecommunications node, comprising:

a frame transmitted in a 125 microsecond interval;

the frame comprising a plurality of service channels;

a service channel transporting traffic for a DS-0 connection, the service channel including a current channel associated signaling (CAS) value for the DS-0 connection; and

a block of contiguous service channels together transporting an asynchronous transfer mode (ATM) cell, the block of contiguous service channels located at a position in the frame associated with a destination element for the ATM cell.

26. The telecommunications signal of Claim 25, the frame further comprising an overhead portion including an internode communication channel, the internode communication channel comprising:

control traffic generated by a line card transmitting the frame; and

the control traffic located at a position in the internode communication channel associated with a destination element for the control traffic.

27. The telecommunications signal of Claim 25, a set of service channels together transporting traffic for an integrated services digital network (ISDN) connection.

28. The telecommunications signal of Claim 27, the set of service channels comprising a block of contiguous service channels together transporting two B-channels and a D-channel of the ISDN connection.

29. A line card for a telecommunications node, comprising:

a port operable to receive traffic from an external link;

an internal interface operable to connect to a point-to-point link of a synchronous bus; and

a traffic processor operable to generate a frame comprising an overhead portion having an internode communication channel and a service traffic portion comprising a plurality of service channels, to generate control traffic destined for a disparate element in the telecommunications node, to insert the control traffic into a slot in the internode communication channel associated with the disparate element, to insert traffic received at the port into the service channels, and to transmit the frame on the point-to-point link of the synchronous bus.

30. The line card of Claim 29, the traffic processor further operable to insert synchronous and asynchronous traffic into the service channels.

31. The line card of Claim 29, the traffic processor further operable to insert DS-0 traffic and a current channel associated signaling (CAS) value for the DS-0 traffic into a service channel.

32. The line card of Claim 29, the traffic processor further operable to insert an asynchronous transfer mode (ATM) cell into a set of service channels associated with a destination element for the ATM cell within the telecommunications node.

33. The line card of Claim 29, the traffic processor further operable to insert integrated services digital network (ISDN) traffic into a set of service channels.

34. A method for communicating control traffic between elements in a telecommunications node, comprising:

generating a frame at a first node element, the frame comprising an internode communication channel;

generating a control message at the first node element;

inserting the control message into the internode communication channel of the frame;

transmitting the frame on a synchronous bus to a switch element; and

synchronously switching the control message in the internode communication channel to a destination element based on the position of the control message in the internode communication channel.

35. The method of Claim 34, wherein the source and destination node elements each comprise a line card.

36. The method of Claim 34, wherein the source and destination node elements each comprise a processor on disparate cards.